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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/021,341  
Filing Date: December 12, 2001  
Appellant(s): Yongcai Wang et al.

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Arthur E. Kluegel  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed March 18, 2008 as revised April 16, 2008  
appealing from the Office action mailed April 19, 2007.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct, however, there is a **new ground of rejection**:

Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

EP 0903246	KITAMURA et al.	3-1999
6,217,166	SAITO et al.	4-2001

7,056,969	CUCH et al.	6-2006
6,440,537	CHU et al.	8-2002

### **(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

1. Claims 1, 8, 9, 11, 14-15 and 17 stand finally rejected under 35 U.S.C. 103(a) as being unpatentable over Kitamura et al. (EP 903,246) taken alone for reasons of record or in view of Saito et al. (6,217,166) or Cuch et al. (7,056,969). Kitamura et al. disclose an ink jet recording material comprising one or more ink receiving layers on a support [0014]. The ink receiving layers include colloidal pigment particles that may be of colloidal silica having an average particle size of 10 to 300 nm and an ultraviolet ray absorber. Calcium carbonate is an additional pigment which may be present in the ink receiving layers [00020, 0021]. The UV absorber is present in an amount of .25 to 25 parts by weight per 100 parts of the total amount of pigment [0029]. The ink receiving layer(s) may also contain an antioxidant which is present in an amount of 1 to 10,000 parts by weight to 100 parts UV absorber [0033]. The antioxidants may be phenolic or sulfur containing, among others [0035-0041]. Antioxidants may be used as a water insoluble powder or as an emulsion, have an average particle size of 500 nm or less, and are used in an amount from 0.5 to 25 parts by weight per 100 parts by weight of the pigment. These materials are mixed with binder and other additives [0042-0049]. The binder may be a water-soluble polymer or a latex polymer. Binder is present in an amount of preferably 5 to 100 parts by solid weight to 100 parts by weight of the pigment. Using the ratios set forth above, pigment, binder and antioxidant may be present in the ranges set forth by the instant claims.

Additionally, the reference discloses that dispersants may be present. It would have been obvious to use a known additive such as a dispersant in quantity necessary to properly disperse the materials [0049]. The prior art discloses use of either one ink receiving layer or two such layers [0053-0056]. It appears that the layers may be the same or different in composition since the additional layer that is not exposed is not

required to have UV absorber present. The outermost layer is present in an amount of 1 to 30 g/m<sup>2</sup> which should permit stabilizer to be present in the range recited by instant claim 13 [0055,0056].

From the description of the ink receiving layer in the reference, the ink receiving layer will be capable of holding ink near the surface above the base layer when ink is applied. See for example, [0046] where the reference states that a cationic compound may be present in the ink receiving layer to enhance ink-fixing and [0053] where the reference describes a "principal" ink receiving layer that is preferably the outermost layer. With respect to claim 17, it is noted that the reference may include a transition metal oxide as the ultraviolet ray absorber [0025]. Appellants include such a material as an inorganic oxide. The reference does not require the presence of an organic ultraviolet ray absorber as well. Therefore, claim 17 is considered to read on Kitamura et al.

It is noted that the pigment size for the colloidal pigment is disclosed as 10 to 500 nm [0015] and for the additional pigment is 2 microns or less [0021]. Ratios of inorganic particles to other components would overlap with appellants' claim requirement that greater than 50% by weight of the base layer is inorganic particles [0021, 0029, 0041, 0045]. The amorphous silica particles of the reference may be silica gel, for example, the silica sol A1 (made from amorphous silica trademark: NIPSIL HD-2, made by NIPPON SILICA INDUSTRIAL COL. LTD.) [0070]. The reference discloses calcium carbonate generically, but does not disclose the particulars of how the calcium carbonate was produced.

The secondary references each disclose precipitated calcium carbonate used in ink jet recording materials. Saito et al. disclose a particle size of 5 to 500 nm (see col. 4, lines 30-65). Cuch et al. disclose that precipitated calcium carbonate is a preferred calcium carbonate, is of particle size 100 to 5000 nm, and is commercially available under certain tradenames (see col. 4, lines 50-64). Since specific precipitated calcium carbonates are well known for inclusion in ink jet recording layers and were commercially available at the time of appellants' invention, it would have been obvious to one of ordinary skill in the art to include a commercially available calcium carbonate

that is well-known in the art as the calcium carbonate disclosed generically by the primary reference.

2. Claims 1 and 10 stand finally rejected under 35 U.S.C. 103(a) as being unpatentable over Kitamura et al. (EP 903246) taken alone or in view of Saito et al. (6,217,166) or Cuch et al. (7,056,969) as applied to claim 1 above, and further in view of Chu et al. (6,440,537) for reasons of record and for reasons given above.

Chu et al. teach an ink jet recording medium including core/shell latex particles as instantly claimed. While Chu et al. do not refer to the latex particles as a binder, since a binder is normally required but is only an optional ingredient in the recording layer of Chu et al., it would have been obvious to one of ordinary skill in the art that the core/shell latex of Chu et al. may be used to serve the function of binder for the layer. This is especially true due to the glass transition temperature of the shell materials of Chu et al. (see col. 3, lines 23-49 and col. 4, lines 41-52). Chu et al. disclose use of the core/shell latex diminishes cracking which would have been an important characteristic in the glossy medium of the primary reference. Consequently, it would have been obvious to one of ordinary skill in the art to utilize core/shell latex as some or all of the binder of the primary reference in order to diminish surface cracks and improve gloss.

### 3. New Ground of Rejection

Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 17 recites that "the image-receiving layer has no UV absorbers for preventing light fade." Most, if not all, inorganic particles will absorb UV radiation and some inorganic particles are conventionally used for this purpose. Inorganic particles must be present in appellants' image receiving layer. It is unclear if in claim 17 appellants intend to exclude inorganic particles, exclude those inorganic particles conventionally used as UV absorbers, or if appellant is attempting to exclude

particles based solely on the intended purpose for their inclusion. It appears that appellants may be attempting to exclude particles based on their intended function in a medium. Such an exclusion would be improper because it would result in the determination of whether or not a single layer composition is excluded or included within the scope of the claim language to be based upon the intent of the producer rather than on whether structural or compositional distinctions exist between the claimed article and that disclosed by the prior art. The claim is unclear because the scope of the exclusion cannot be determined.

#### **(10) Response to Argument**

Appellants assert that the primary reference does not teach stabilizer particles in both layers. To support their position, Appellants cite the statement in the reference that: "[t]he additional ink receiving layer which may contain no ultraviolet ray absorber ...". Contrary to appellants' assertions, language stating that the layer may contain no absorber also teaches that the layer may contain absorber. It means the layer can be either way and therefore teaches the layer with and without the absorber present.

Kitamura et al. simply do not exclude UV absorbers and antioxidants from layers other than the outermost layer. Paragraph [0053] states that "the ink receiving layer preferably comprises one or more additional ink receiving layer in addition to the specific ink receiving layer.... When two or more ink receiving layers are formed on the support, at least one of them is the principal ink receiving layer comprising the specific fine colloid particles and the ultraviolet ray absorber" (emphasis added). This suggests that if there is more than one layer, multiple layers may form the principal layer and contain fine colloidal particles and ultraviolet ray absorber. Disclosures such as that in [0034] teach inclusion of antioxidant in "at least one layer of the ink receiving layers." Kitamura et al. include embodiments where ultraviolet ray absorber is only in the outer layer, but also disclose embodiments that have ultraviolet ray absorber in multiple layers. The reference disclosure is not limited by the specific disclosed examples. It is reasonable in light of the suggestion of the reference that more than one principal layer

may be present and that such layers would generally not be as thick as a single principal layer, that UV absorbers and antioxidants would be included in all of the principal layers. See [0053]. It is noted that consistent with the reference, appellants' outer layer may be relatively thin.

Appellants also rely on a disclosure in the reference that the outermost layer preferably contains cationic compound to support the notion that the layers of the reference do not have the same composition (appellants cite [0052] but the examiner found this disclosure at [0046]). Reciting that a compound is preferably in one layer does not exclude its presence in the other layer(s).

On page 5 of the Brief, Appellants quote a section of Kitamura et al. at [0061] and conclude that "the concern for light resistance is only relevant to the outermost ink receiving layer and, even then, only to a limited thickness or depth of the outermost layer." However, in the section of the reference quoted by Appellants, the reference uses the language "preferably arranged to form an outermost layer..." This disclosure is to a preferred embodiment and is not representative of the full scope of the disclosure. Also, the language used is "an outermost layer"(emphasis added). Since "an" has been interpreted in case law as having the meaning "one or more," the language supports the Examiner's interpretation.

Appellants also attempt to distinguish by asserting that their base layer is not an image-receiving layer and that the Examiner is equating their base layer to an image receiving layer of the reference. This is not the case. The layers of the reference are not image receiving layers; they are ink receiving layers. The term ink receiving is broader than image receiving and would include layers that capture the image (i.e. ink colorant) as well as layers that act primarily as a sump for ink solvent and also layers that perform both functions. The layers of the reference must be capable of receiving colorant, solvent, or both colorant and solvent.

Appellants argue that their base layer is used as a sump for the ink solvent. This feature is not claimed, but even if it were, it would not distinguish over the reference layers. The reference discloses one or more ink receiving layers which may be of the same or different compositions. From this disclosure, it appears that each of the layers

would have to absorb a portion of the ink solvent, i.e. act as a sump for ink solvent, because there is no separate mechanism to serve this purpose and the layers have similar compositions. In addition, one or more layers may be involved in capturing the colorant and forming the image. While one of ordinary skill in the art may predict that the outermost layer is intended to capture the colorant because it is the preferred location for a cationic compound that will act to mordant an anionic dye, a clear line of demarcation between the purposes of the ink receiving layers of the reference cannot be drawn; other layers may also contain cationic compound [0046, 0054]. Contrary to appellants' assertions, this is not a persuasive basis for distinguishing appellants' claims from the prior art.

Appellants also assert that their base and image receiving layers significantly differ in composition. The reference may also have layers of different composition and functionality. All of the disclosed and claimed particles are well known to one of ordinary skill in this art and selection from among them would have been considered obvious, yielding predictable results, at the time of appellants' invention. It is also noted that the inorganic particles of the reference [0014, 0021, 0011] overlap significantly with those recited by appellants at page 5 of the specification.

Appellants discuss their comparisons from the specification. These comparisons are not made with the closest prior art. The control examples in Appellants' specification have no antioxidant in the base layer or have none in the image receiving layer. These examples are not representative of the primary reference. Without performing any direct comparisons with the applied art, appellants attempt to distinguish over the primary reference by attributing improved results in the reference examples to the presence of UV absorbers rather than to antioxidants. Appellants argue that UV absorbers may cause discoloration, however, only appellants' claim 17 recites that UV absorber is not present. The argument concerning the presence (or lack) of UV absorber isn't persuasive because in fact, appellants do include UV absorbers in their layers. Many of appellants' disclosed inorganic particles which presumably may be present in the medium of instant claim 17 are referred to as UV absorbers by the reference. Claim 17, which recites the exclusion of UV absorbers, appears to be at



odds with the disclosure of the invention (see for example, page 4, line 29 through page 5, line 7). The meaning of claim 17 is unclear since the same materials are both inorganic particles and well known UV absorbers.

For the above reasons, it is believed that the rejections should be sustained.

This examiner's answer contains a new ground of rejection set forth in section (9) above. Accordingly, appellant must within **TWO MONTHS** from the date of this answer exercise one of the following two options to avoid *sua sponte* **dismissal of the appeal** as to the claims subject to the new ground of rejection:

(1) **Reopen prosecution.** Request that prosecution be reopened before the primary examiner by filing a reply under 37 CFR 1.111 with or without amendment, affidavit or other evidence. Any amendment, affidavit or other evidence must be relevant to the new grounds of rejection. A request that complies with 37 CFR 41.39(b)(1) will be entered and considered. Any request that prosecution be reopened will be treated as a request to withdraw the appeal.

(2) **Maintain appeal.** Request that the appeal be maintained by filing a reply brief as set forth in 37 CFR 41.41. Such a reply brief must address each new ground of rejection as set forth in 37 CFR 41.37(c)(1)(vii) and should be in compliance with the other requirements of 37 CFR 41.37(c). If a reply brief filed pursuant to 37 CFR 41.39(b)(2) is accompanied by any amendment, affidavit or other evidence, it shall be treated as a request that prosecution be reopened before the primary examiner under 37 CFR 41.39(b)(1).

Extensions of time under 37 CFR 1.136(a) are not applicable to the TWO MONTH time period set forth above. See 37 CFR 1.136(b) for extensions of time to

reply for patent applications and 37 CFR 1.550(c) for extensions of time to reply for ex parte reexamination proceedings.

Respectfully submitted,

/Pamela R. Schwartz/

Primary Examiner, Art Unit 1794

**A Technology Center Director or designee must personally approve the new ground(s) of rejection set forth in section (9) above by signing below:**

/Gregory L Mills/

Supervisory Patent Examiner, Art Unit 1700

Conferees:

/Milton I. Cano/

Supervisory Patent Examiner, Art Unit 1794

/Gregory L Mills/

Supervisory Patent Examiner, Art Unit 1700